REMARKS

Claims 1-3, 5-10, 12-14, and 16-20 are pending and rejected in this application.

Claims 1, 19, and 20 are amended hereby. Applicant submits that no new matter has been added to such claims, nor have any new issues been raised therein. Support for such changes can be found, e.g., in claims 5 and 8.

Responsive to the rejection of claims 1-3, 5, 8-10, 12-14, and 16-20 under 35 U.S.C. § 103(a) as being unpatentable over JP 8-178770 (Kamibayashi) in view of either U.S. Patent Number 3,618,379 (Lipton) or U.S. Patent Number 3,174,334 (McKernan) and further in view of Proceq SA (SM 55, SM 150), Applicant has amended claims 1, 19, and 20 and hereby otherwise traverses this rejection. Applicant submits that claims 1-3, 5, 8-10, 12-14, and 16-20 are now in condition for allowance.

Claims 1 and 19, each as amended, recite in part:

> a hydraulic jack...being configured for applying a pulling force on the stressed cable...

In a similar fashion, claims 8 and 20, each as amended, recite in part:

> applying a pulling force utilizing a hydraulic jack to the stressed cable...

Applicant submits that such an invention as set forth in each of claims 1, 8, 19, and 20 is neither taught, disclosed, nor suggested by any of the cited references, alone or in combination.

Each of Kamibayashi (Fig. 3), Lipton '379 (Fig. 2), and McKernan '334 (Fig. 1) each disclose a tensiometer that employs a compression type load cell to facilitate the

measurement of tension within a rope or cable. Meanwhile, Proceq SA does employ the use of a pulling force in order to measure the tensile force within highly stressed steel wires or strands. The primary reference Kamibayashi '770 discloses a rope-tension measuring device that uses a compression type load cell 4 and a micrometer 5 to determine a deflection amount H. Meanwhile, Proceq SA does indicate the use of a pulling force as part of a wire tension meter system.

However, the question is actually whether or not it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Kamibayashi '770 to replace the compression type load cell used therein with a pulling or tensile force load cell as employed by Proceq SA. As set forth in MPEP § 2143.01, it has been held that if a proposed modification or combination of prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Rati*, 270 F. 2d 810,123 USPQ 349 (CCPA 1959). In that course case, the court reversed the rejection holding that the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in the [primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F. 2d 813,123 USPQ 352.

Like the situation occurring in *In re Rati*, Applicant submits that the modification of Kamibayashi '770 to use a pulling or tensile type load cell instead of a compression type load cell would in fact require a substantial reconstruction and redesign of the

elements shown in Kamibayashi '770 as well as change the basic principle under which Kamibayashi was designed to operate. Specifically, Kamibayashi '770 is configured to operate with the use of compression type load cell 4 in mind, including having the rope R received within rope sockets 26 which face inwardly toward the main portion of frame 2. Kamibayashi has been designed with the expressed purpose of being able to measure the tension of an already stretched wire rope in a simple yet highly accurate manner. The position of sockets 26 of Kamibayashi would have to be changed if a pulling or tensile force were used instead of a compression force in order for a deflection of rope R to be made possible. Thus, it is clear that a significant redesign and change in the basic principle of operation of Kamibayashi '770 would be involved if modified in the manner suggested by the Examiner with Proceq SA. Since none of Kamibayashi '770, Lipton '379, and McKernan '334 disclose or suggest a tensiometer using a tensile or pulling force on a stressed cable and since there is no appropriate motivation to modify Kamibayashi '770 with Proceq SA, Applicants submits that the cited reference combination fails to teach or suggest each and every claimed element in each of claims 1, 8, 19, and 20.

Furthermore, claim 1, as amended, recites in part:

> a frame having a pair of notched ends adapted to receive and support the stressed cable, each said notched end facing away from said frame...

Similarly, claim 8, recites in part:

> supporting the stressed cable with a frame at a selected pair of spaced apart supported points of said frame, each said supported point facing away from the frame...

In a similar fashion, claim 19, as amended, recites in part:

> a frame having a pair of ends adapted to engage the stressed cable, each said end facing away from said frame...

Finally, claim 20, as amended, recites in part:

> supporting the stressed cable with a frame at a selected pair of spaced apart supported points of said frame, each said supported point facing away from said frame...

Applicant submits that such an invention is neither taught, disclosed, nor suggested by any of the cited references, alone or in combination.

Each of Kamibayashi '770, Lipton '379, and McKernan '334 discloses a tensiometer using a compression type load cell and an accompanying frame having low ends, the rope or cable bearing portions of which face toward the frame. However, Proceq SA does illustrate a tensiometer having a tensile force applicator and a frame having wire or strand engaging ends that face away from the frame. Since neither Lipton nor McKernan can be replied upon for a teaching of a frame having cable engaging ends that face away from the frame, the issue again becomes whether or not it would be obvious to modify Kamibayashi with Proceq SA to provide for cable-engaging ends which face away from the frame. However, in modifying the frame so as to provide ends which would face away from the frame and still be capable of engaging

the stressed cable, the compression type load cell 4 of Kamibayashi would need to be replaced with a tensile or pulling force load cell in order for tension to be measured by the modified device. The fact that a single modification such as changing the end positioning so as to face away from the frame could not successfully be enacted without dictating a further, separate change to the structure of Kamibayashi (i.e., replacement of the compression type load cell with a tensile or pulling type load cell) in order to achieve an operable measuring device is indicative of the non-obviousness of such a modification. Again, as stated previously with respect to the potential modification of Kamibayashi with Proceq SA, a proposed modification cannot change the principle of operation of a reference, nor can it require substantial reconstruction and redesign of the elements of the primary reference (i.e., Kamibayashi '770). MPEP § 2143.01. Thus, the combination of references set forth at page 2, paragraph 2, of the present Office Action fails to teach or suggest the present invention as set forth in claims 1, 8, 19, and 20.

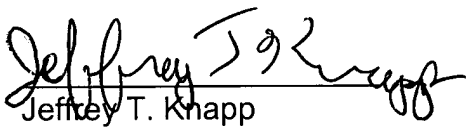
For all the foregoing reasons, Applicant submits that claims 1, 8, 19, and 20, and those claims depending therefrom, are now in condition for allowance and hereby respectfully request that the rejection thereof based upon Kamibayashi '770 in view of either Lipton '379 or McKernan '334 and further in view of Proceq SA be withdrawn.

Claim 6, 13, and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamibayashi in view of either Lipton or McKernan and further in view of Proceq SA as applied to claims 1-3 above and further in view of U.S. Patent Number 4,423,639

(Grade et al). However, claims 6, 13, and 17, each depend from claim 1, which is in condition for allowance for the reasons set forth above. Therefore, Applicant submits that claims 6, 13, and 17 are also in condition for allowance, the allowance of which is hereby respectfully requested.

If the Examiner has any questions or comments that would speed prosecution of this case, the Examiner is invited to call the undersigned at 260/485-6001.

Respectfully submitted,



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Encs: Amendments to the Claims
(5 Sheets; pp. 8-12)
Explanatory Cover Sheet Page 1
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on: November 25, 2003.

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Name of Registered Representative

Signature

November 25, 2003
Date

AMENDMENTS TO THE CLAIMS

1 (currently amended): A device for measuring the tension in a stressed cable, said device comprising:

a frame having a pair of notched ends adapted to receive and ~~engage~~ support the stressed cable, each said notched end facing away from said frame;

a hydraulic jack mounted on said frame between its ends, said jack being configured for applying a pulling force on the stressed cable; and

a linear deflection measuring means on said frame, for measuring the linear deflection of the stressed cable.

2 (original): A device as defined in Claim 1 further comprising a hook means, said hook connected to said jack and adapted for engagement with said stressed cable.

3 (original): A device as defined in Claim 2 wherein the force of said jack is applied to the stressed cable through said hook means.

4 (original): A device as defined in Claim 1 wherein the jack is a hydraulic jack.

5 (original): A device as defined in Claim 1 wherein the jack applies a pre-set force to the stressed cable.

AMENDMENTS TO THE CLAIMS

6 (original): A device as defined in Claim 1 wherein said measuring means includes a gauge mounted onto said frame.

7 (original): A device as defined in Claim 1 wherein the frame is in the shape of a "V".

8 (previously presented): A method of detecting the amount of tension in a stressed cable, said method including the following steps:

supporting the stressed cable with a frame at a selected pair of spaced apart supported points of said frame, each said supported point facing away from the frame;

applying a pulling force utilizing a hydraulic jack to the stressed cable sufficient to deflect the cable relative to said supported points; and

measuring the linear deflection of the stressed cable.

9 (original): A method as defined in Claim 7 wherein the force that is applied to the stressed cable is a known force.

10 (previously presented): The method as defined in claim 8, said method further including the following step: calculating the amount of stress in the stressed cable using the measured amount of linear deflection, by applying the following equation:

AMENDMENTS TO THE CLAIMS

$$T = \frac{F}{2\sin\theta} \text{ where } \theta = \tan^{-1}\frac{\Delta}{L/2}$$

wherein the variable "F" refers to the pulling force placed on the stressed cable, "L" refers to the distance between said spaced apart supported points of the stressed cable, "Δ" refers to the deflection, and "θ" refers to an angle of deflection of the stressed cable.

11 (original): A device as defined in Claim 2 wherein the jack is a hydraulic jack.

12 (original): A device as defined in Claim 2 wherein the jack applies a pre-set force to the stressed cable.

13 (original): A device as defined in Claim 2 wherein said measuring means includes a gauge mounted onto said frame.

14 (original): A device as defined in Claim 2 wherein the frame is in the shape of a "V".

15 (original): A device as defined in Claim 3 wherein the jack is a hydraulic jack.

16 (original): A device as defined in Claim 3 wherein the jack applies a pre-set force to the stressed cable.

AMENDMENTS TO THE CLAIMS

17 (original): A device as defined in Claim 3 wherein said measuring means includes a gauge mounted onto said frame.

18 (original): A device as defined in Claim 3 wherein the frame is in the shape of a "V".

19 (currently amended): A device for measuring the tension in a stressed cable of a concrete structure, said device comprising:

a frame having a pair of ends adapted to engage the stressed cable, each said end facing away from said frame, each said end thereby being adapted for biasing the stressed cable toward the structure;

a hydraulic jack mounted on said frame between its ends, said jack being configured for applying a pulling force on the stressed cable, the pulling force directed away from the structure; and

a linear deflection measuring means on said frame, for measuring the linear deflection of the stressed cable.

20 (currently amended): A method of detecting the amount of tension in a stressed cable of a concrete structure, said method including the following steps:

supporting the stressed cable with a frame at a selected pair of spaced apart supported points of said frame, each said

AMENDMENTS TO THE CLAIMS

supported point facing away from said frame, the stressed cable thereby being biased toward the structure at each said supported point;

applying a pulling force utilizing a hydraulic jack to the stressed cable sufficient to deflect the cable relative to said supported points and away from the structure; and

measuring the linear deflection of the stressed cable.